

What is claimed is:

1. A battery pack comprising:

at least one or more battery cells;

5 first and second switches connected to each battery cell;

a switch controller for controlling the first and second switches;

a voltage measuring unit for measuring a voltage of a battery cell through
the first and second switches; and

a controller for selecting one or several battery cells according to a
10 residual voltage of each battery cell and a control signal of a terminal, and
performing charging of a battery cell or supplying of power.

2. The battery pack of claim 1 further comprises:

an interface unit for interfacing an external terminal and a charging unit.

15

3. The battery pack of claim 2, wherein the interface unit comprises:

a power input terminal for transferring power supplied from the charging
unit to the first switch;

a power supply unit for supplying power of a battery cell received through
20 the second switch to the terminal;

a command input terminal for outputting a control signal of the terminal to
the controller; and

a command output terminal for outputting result data of the controller to
the terminal.

25 4. The battery pack of claim 1, wherein the first switch is a charge

switch and the second switch is a supply switch.

5 5. The battery pack of claim 1, wherein the control signal of the terminal indicates a mode change, a switch manipulation and measurement of a residual voltage of a battery cell.

6. The battery pack of claim 1, wherein the controller comprises:
a voltage measuring unit for measuring a charge voltage and residual voltage of battery cells;
10 a command interpreting and controlling unit for performing a controlling operation according to the measurement voltage of the voltage measuring unit and a control signal of the terminal; and
a switch controller for controlling the first and second switches according to a control signal of the command interpreting and controlling unit.

15

7. The battery pack of claim 6, wherein the voltage measuring unit, the command interpreting and controlling unit and the switch controller is implemented as a low voltage logical circuit or as a microcomputer.

20

8. The battery pack of claim 1, wherein the controller depends only on the control signal of the terminal in a manual mode and performs charging of the battery cell or power supplying by itself according to the residual voltage of the battery cell regardless of the control signal in an automatic mode.

25

9. The battery pack of claim 8, wherein the controller selects and

charges a battery cell having the least memory effect according to a residual voltage of the battery cell.

10. The battery pack of claim 9, wherein the controller charges battery
5 cells in a sequential order beginning with those battery cells having the least memory effect according to residual voltages of battery cells.

11. The battery pack of claim 8, wherein the controller selects only
those battery cells having a residual voltage greater than a minimum threshold
10 voltage from a plurality of battery cells, and uses the selected battery cells for supplying power to the terminal.

12. The battery pack of claim 10, wherein the controller sequentially
supplies power to the terminal using the battery cells beginning with the battery
15 cell having the smallest residual voltage.

13. The battery pack of claim 8, wherein if the residual voltage of the
battery cells is lower than the minimum threshold voltage, the controller is
switched to a basic mode for performing charging and power supplying by
20 connecting all the battery cells in parallel.

14. The battery pack of claim 8, wherein when there is an external
request for a residual voltage measurement of a battery cell, the controller
measures and reports a voltage of each battery cell.

15. A method for charging a battery pack having at least one or more battery cells and supplying power, comprising:

selecting a battery cell with the smallest memory effect from a plurality of battery cells and charging the selected battery cell; and

5 selecting a battery cell with the smallest memory effect from the charged plurality of battery cells and supplying power to a terminal.

16. The method of claim 15, wherein the charging step comprises:

measuring residual voltages of each battery cell;

10 comparing the measured residual voltages with the minimum threshold voltage; and

selecting a battery cell having the smallest residual voltage among residual voltages which are greater than the minimum threshold voltage and charging the selected battery cell.

15

17. The method of claim 16, wherein the residual voltage of the selected battery cell is greater than the minimum threshold value but smaller than a reference threshold voltage.

20 18. The method of claim 17, wherein the reference threshold voltage is the lowermost voltage in a range of maximum charge voltages.

19. The method of claim 16 further comprising:

connecting the plurality of battery cells in parallel and charging these
25 battery cells if there is no residual voltage greater than a minimum discharge

threshold voltage.

20. The method of claim 15, wherein the power supply step comprises:

- 5 measuring each residual voltage of the plurality of battery cells;
- comparing the measured residual voltages with the minimum threshold voltage; and
- supplying power of a battery cell, having the smallest residual voltage among residual voltages which are greater than the minimum threshold voltage, to
- 10 the terminal.

21. The method of claim 20 further comprising:

connecting the plurality of battery cells in parallel and supplying power if there is no residual voltage greater than the minimum threshold voltage.

15

22. An operation method of a battery pack including at least one or more battery cells, comprising:

- selecting a first battery cell according to a control signal inputted from a terminal;
- 20 charging the selected first battery cell;
- selecting one or more second battery cells which have been previously charged according to a control signal of the terminal; and
- supplying power of the selected second battery cell to the terminal.

25 23. The method of claim 22, wherein the first battery cell has the least

memory effect.

24. The method of claim 22, wherein the first battery cell has the smallest residual voltage among battery cells which have a residual voltage
5 greater than a minimum threshold voltage.

25. The method of claim 22, wherein the second battery cell has a residual voltage greater than the minimum threshold voltage.